

Text of the First Office Action

Application No. 200480008992.7

This application relates to antenna arrays and methods of making the same. After an examination, specific comments are now provided as follows,

Claims 27-28, 32-33, 36-37, 42 are not in conformity with the provisions of Article 22, para.2 of the Chinese Patent Law; claims 1-26, 29-31, 34-35, 38-41, 43-53 are not in conformity with the provisions of Article 22, para.3 of the Chinese Patent Law.

1. Claim 1 claims an antenna. D1 (US5339089A) discloses an antenna, and specifically discloses the following contents (see the Description, column 3, line 48 to column 5, line 54, Figs.1-5): the antenna has two conductors 10 and 12 having a substantially uniform gap therebetween, in the gap of the two conductors is provided dielectric 40a (corresponding to the substrate having a first side and second side, conductor 10 corresponding to the first conductor coupled to the first side of the substrate, and conductor 12 corresponding to the second conductor coupled to the second side of the substrate); both conductors 10 and 12 include alternating wide and narrow elements, the conductor 10 has a plurality of wide through elements 18a-21a, and a plurality of narrow elements 14a-17a, one end of the conductor 10 has a tear-drop-shaped extension 44 (corresponding to the first conductor comprising a feed element, at least one first side wide element); the conductor 12 has a narrow element 45 corresponding to the tear-drop-shaped conductor 44, an inner conductor 43 of the co-axial connector 42 is connected to the narrow element 45, and the extension 44 of the conductor 10 and the conductor 12 are connected via the outer conductor of the co-axial connector 42 (corresponding to the feed element containing a short to the second side element); the conductor 12 has a plurality of wide through elements 14b-17b and a plurality of narrow elements 18b-21b, the narrow elements and the wide through elements of the conductor 10 corresponding respectively to the wide through elements and the narrow elements of the conductor 12 in position (corresponding to the second side wide elements being substantially aligned beneath at least the terminating element, the at least one second side narrow elements being substantially aligned beneath the at least one first side wide elements), at one end opposite to the feed is disposed a short circuit, which is connected the wide through element 14b (corresponding to the terminating element containing a short to one of the plurality of second side wide elements) from the narrow element 14a (corresponding to the terminating element of the first conductor) via the conductor rod, the coaxial connector 42 is used for feeding RF signals (corresponding to the power feed connected to the feed element). The difference of claim 1 from D1 is: the second side wide elements in claim 1 being aligned beneath the feed element, the feed element containing a short to one of the second side wide element, whereas in D1, what is opposite to the extension 44 of the conductor 10 is the narrow element 45 of the conductor 12, what is connected to the extension 44 via the outer conductor is not definitely determined to be the wide element. However, to a person skilled in the art, the above distinguishable technical

feature is a conventional means for realizing the necessary operating frequency and radiation intensity. It is obvious for a person skilled in the art to obtain the technical solution claimed in this claim on the basis of D1 and in conjunction with the conventional means, and thus the technical solution claimed in this claim does not possess prominent and substantive feature and notable progress and hence no inventiveness as provided under Article 22, para.3 of the Chinese Patent Law.

2. The additional technical feature of Claim 2 defines the first wide elements, second side narrow elements and the mutual relations therebetween. D1 further discloses the following contents (see the Description, column 3, line 48 to column 5, line 54, Figs.1-5): both conductors 10 and 12 include alternating wide and narrow elements, the conductor 10 has a plurality of wide through elements 18a-21a, and a plurality of narrow elements 14a-17a, the conductor 12 has a plurality of wide through elements 14b-17b, and a plurality of narrow elements 18b-21b, the narrow elements and the wide through elements of the conductor 10 corresponding respectively to the wide through elements and the narrow elements of the conductor 12 in position. The additional technical feature of claim 2 has been disclosed by D1. Now that claim 1 as referred to has no inventiveness, claim 2 does not possess inventiveness either.

3. Claim 3 refers to claim 1, and its additional technical feature defines the power feed. The additional technical feature is a conventional means to realize feed in the field. Now that claim 1 as referred to has no inventiveness, claim 3 does not possess inventiveness either.

4. Claim 4 refers to claim 3, and its additional technical feature defines the power feed. D1 further discloses the following contents (see the Description, column 5, lines 1-54): the coaxial connector 42 has an inner conductor 43 and outer conductor, the inner conductor 43 is connected to the narrow element 45 of the conductor 12, and to the extension 44 of the conductor 10. What is connected to the feed element in claim 4 is a power conductor, and what is coupled to the second conductor is an outer jacket. D1 is just the opposite, but it is a conventional means in the field to couple the power conductor to the feed element, and the outer jacket to the second conductor for directing feeding the first conductor. Now that claim 3 as referred to has no inventiveness, claim 4 does not possess inventiveness either.

5. Claim 5 refers to claim 3, and its additional technical feature defines the first side narrow elements and first side wide elements. D1 further discloses the following contents (see the Description, column 3, line 39 to column 4, line 17, Fig.1): the connector 10 has a plurality of wide through elements 18a-21a, and a plurality of narrow elements 14a-17a, the narrow elements and wide elements being disposed alternately. The additional technical feature of claim 5 has been disclosed by D1. Now that claim 3 as referred to has no inventiveness, claim 5 does not possess inventiveness either.

6. Claim 6 refers to claim 3, and its additional technical feature defines the first side narrow elements. D1 further discloses the following contents (see the Description, column 3, line 39 to column 4, line 17, Fig.1): the connector 10 has a plurality of narrow elements 14a-17a. The additional technical feature of claim 6 has been disclosed by D1. Now that claim

3 as referred to has no inventiveness, claim 6 does not possess inventiveness either.

7. Claim 7 refers to claim 6, and its additional technical feature defines the first side wide elements and first side narrow elements. D1 further discloses the following contents (see the Description, column 3, line 39 to column 4, line 17, Fig.1): the connector 10 has a plurality of wide through elements 18a-21a, and a plurality of narrow elements 14a-17a. It is a conventional means in the field that M is greater than N in claim 7 in order to obtain a desirable radiation pattern. The additional technical feature of claim 7 has been disclosed by D1. Now that claim 6 as referred to has no inventiveness, claim 7 does not possess inventiveness either.

8. Claim 8 refers to claim 7, and its additional technical feature defines the M. However, it is a conventional setting in the field that M equals N+1 for setting elements. Now that claim 7 as referred to has no inventiveness, claim 8 does not possess inventiveness either.

9. The additional technical features of claims 9, 10, 11 define the first side narrow elements or wide elements. The plurality of narrow elements 14a-17a of the conductor 10 in D1 have a certain length, and the plurality of wide through elements 18a-21a have a certain length. It is clear that the additional technical features of the above claims have been disclosed by D1. Now that the claims as referred to have no inventiveness, the above claims do not possess inventiveness either.

10. Claim 12 refers to claim 11, and its additional technical feature is "L equals L'". However, it is a conventional means to obtain a predetermined radiation pattern and frequency. Now that claim 11 as referred to has no inventiveness, claim 12 does not possess inventiveness either.

11. Claim 13 refers to claim 12, and its additional technical feature is "the feed element and the terminating element have a length L'". However, it is a conventional means in the field to arrange a feed element and terminating element. Now that claim 12 as referred to has no inventiveness, claim 13 does not possess inventiveness either.

12. Claim 14 refers to claim 13, and its additional technical feature is "L equals L/2". However, it is a conventional means to obtain a predetermined operating frequency. Now that claim 13 as referred to has no inventiveness, claim 14 does not possess inventiveness either.

13. Claim 15 refers to claim 14, and its additional technical feature is "L equals 1/2 wavelength". However, it is a conventional means to obtain a predetermined operating frequency. Now that claim 14 as referred to has no inventiveness, claim 15 does not possess inventiveness either.

14. Claim 16 refers to claim 15, and its additional technical feature is "L is adjusted for dielectric properties of the substrate". However, it is a conventional means to obtain a predetermined operating frequency and radiation pattern. Now that claim 15 as referred to has no inventiveness, claim 16 does not possess inventiveness either.

15. The additional technical features of claims 17-21 define the first side narrow elements or wide elements. D1 has disclosed that the plurality of narrow elements 14a-17a of the

3 as referred to has no inventiveness, claim 6 does not possess inventiveness either.

7. Claim 7 refers to claim 6, and its additional technical feature defines the first side wide elements and first side narrow elements. D1 further discloses the following contents (see the Description, column 3, line 39 to column 4, line 17, Fig 1): the connector 10 has a plurality of wide through elements 18a-21a, and a plurality of narrow elements 14a-17a. It is a conventional means in the field that M is greater than N in claim 7 in order to obtain a desirable radiation pattern. The additional technical feature of claim 7 has been disclosed by D1. Now that claim 6 as referred to has no inventiveness, claim 7 does not possess inventiveness either.

8. Claim 8 refers to claim 7, and its additional technical feature defines the M. However, it is a conventional setting in the field that M equals N+1 for setting elements. Now that claim 7 as referred to has no inventiveness, claim 8 does not possess inventiveness either.

9. The additional technical features of claims 9, 10, 11 define the first side narrow elements or wide elements. The plurality of narrow elements 14a-17a of the conductor 10 in D1 have a certain length, and the plurality of wide through elements 18a-21a have a certain length. It is clear that the additional technical features of the above claims have been disclosed by D1. Now that the claims as referred to have no inventiveness, the above claims do not possess inventiveness either.

10. Claim 12 refers to claim 11, and its additional technical feature is "L equals L'". However, it is a conventional means to obtain a predetermined radiation pattern and frequency. Now that claim 11 as referred to has no inventiveness, claim 12 does not possess inventiveness either.

11. Claim 13 refers to claim 12, and its additional technical feature is "the feed element and the terminating element have a length L'". However, it is a conventional means in the field to arrange a feed element and terminating element. Now that claim 12 as referred to has no inventiveness, claim 13 does not possess inventiveness either.

12. Claim 14 refers to claim 13, and its additional technical feature is "L' equals L/2'". However, it is a conventional means to obtain a predetermined operating frequency. Now that claim 13 as referred to has no inventiveness, claim 14 does not possess inventiveness either.

13. Claim 15 refers to claim 14, and its additional technical feature is "L equals 1/2 wavelength'". However, it is a conventional means to obtain a predetermined operating frequency. Now that claim 14 as referred to has no inventiveness, claim 15 does not possess inventiveness either.

14. Claim 16 refers to claim 15, and its additional technical feature is "L is adjusted for dielectric properties of the substrate'". However, it is a conventional means to obtain a predetermined operating frequency and radiation pattern. Now that claim 15 as referred to has no inventiveness, claim 16 does not possess inventiveness either.

15. The additional technical features of claims 17-21 define the first side narrow elements or wide elements. D1 has disclosed that the plurality of narrow elements 14a-17a of the

conductor 10 have a certain length, and the plurality of wide through elements 18a-21a have a certain length. It is clear that the additional technical features of the above claims have been disclosed by D1. Now that the claims as referred to have no inventiveness, the above claims do not possess inventiveness either.

16. Claim 22 refers to claim 17, and its additional technical feature is "the feed element and the terminating element have a width W ". However, it is a conventional means in the field to arrange a feed element and terminating element. Now that claim 17 as referred to has no inventiveness, claim 22 does not possess inventiveness either.

17. Claim 23 refers to claim 22, and its additional technical feature is " W equals W ". However, it is a conventional means to obtain a predetermined radiation pattern and frequency. Now that claim 22 as referred to has no inventiveness, claim 23 does not possess inventiveness either.

18. Claim 24 refers to claim 22, and its additional technical feature is "width W " comprises a plurality of widths W ". However, it is a conventional means to obtain a predetermined radiation pattern and frequency. Now that claim 22 as referred to has no inventiveness, claim 24 does not possess inventiveness either.

19. Claim 25 refers to claim 1, and its additional technical feature defines the first conductor and second conductor. D1 further discloses the following contents (see the Description, column 3, line 48 to column 5, line 54, Figs.1-5): the connectors 10 and 12 includes alternating wide and narrow element, the conductor 10 has a plurality of wide through elements 18a-21a, and a plurality of narrow elements 14a-17a, and the conductor 12 has a plurality of wide through elements 14b-17b, and a plurality of narrow elements 18b-21b, the narrow elements and wide through elements being disposed alternately. The additional technical feature of claim 25 has been disclosed by D1. Now that claim 1 as referred to has no inventiveness, claim 25 does not possess inventiveness either.

20. Claim 26 refers to claim 1, and its additional technical feature is that "the substrate has a thickness d ". D1 further discloses the following contents (see the Description, column 3, line 48 to column 5, line 54, Figs.1-5): the antenna has conductors 10 and 12 having a gap therebetween, in the gap being filled with dielectric 40a. The additional technical feature of claim 26 has been disclosed by D1. Now that claim 1 as referred to has no inventiveness, claim 26 does not possess inventiveness either.

21-39 (Omitted. Please refer to the previous contents for opinions on claims 27-50).

40. Claim 51 refers to claim 50, and its additional technical feature defines the separate means. D1 further discloses the following contents (see the Description, column 3, line 48 to column 5, line 54, Figs.1-5): a dielectric 40a is provided in the gap between the two conductors. The additional technical feature of claim 51 has been disclosed by D1. Now that claim 50 as referred to has no inventiveness, claim 51 does not possess inventiveness either.

41. Claims 52, 53 refer to claim 50, and their additional technical features define the separate means. It is a conventional means to set separate means in the field. Now that claim

50 as referred to has no inventiveness, claims 52, 53 do not possess inventiveness either.

To sum up, none of the claims of this application have novelty and/or inventiveness. If the applicant fails to put forward convincing reasons within the time limit for a response as prescribed that this application can be granted a patent right, this application shall be rejected.